$$\int_0^1 (y^2 - y^3)\,dy = \left.\frac{y^3}{3} - \frac{y^4}{4}\right]_0^1$$

y-values

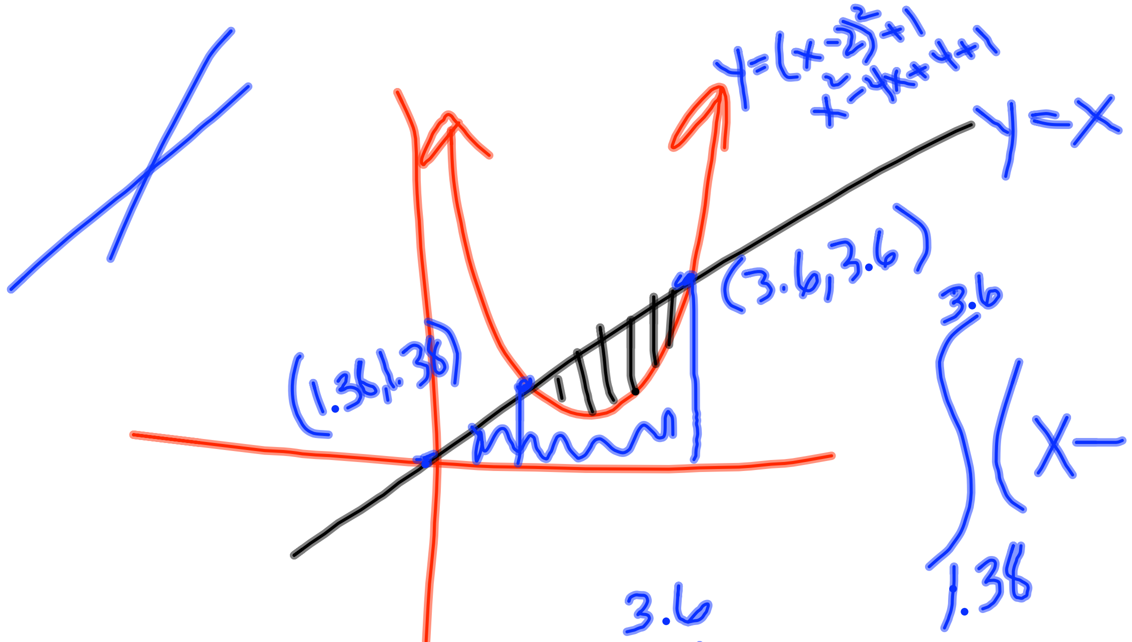
$$\frac{1}{3} - \frac{1}{4}$$

$$\frac{4}{12} - \frac{3}{12} = \frac{1}{12}$$

$$\int_0^1 \left(x^{\frac{1}{3}} - x^{1/2}\right) dx = \frac{3}{4}x^{4/3} - \frac{2}{3}x^{3/2}\Big]_0^1$$

$$\frac{3}{4} - \frac{2}{3}$$

$$\frac{9}{12} - \frac{8}{12} = \frac{1}{12}$$



$$\int_{1.38}^{3.6} \left(x-\left(x^2-4x+5\right)\right)dx$$

$$\int_{1.38}^{3.6} \left(x-x^2+4x-5\right)dx$$

$$\int_{1.38}^{3.6} \left(-x^2+5x-5\right)dx$$

$$-\frac{x^3}{3}+\frac{5x^2}{2}-5x\Big]_{1.38}^{3.6} = \left[-\frac{(\overset{1.38}{\cancel{3.6}})^3}{3}+\frac{5(\overset{1.38}{\cancel{3.6}})^2}{2}-5(\overset{1.38}{\cancel{3.6}})\right]$$

$-2.157 \qquad (-1.152)+(+3.015)$

≈ 1.863 sq. units

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#9 Top − Bottom

$$\int_{-2}^{0}\left[(2x^3 - \cancel{x^2} - 5x) \cancel{-} (\cancel{-x^2} + 3x)\right]dx + \int_{0}^{2}\left[(-x^2 + 3x) - (2x^3 - x^2 - 5x)\right]dx$$

$$\int_{-2}^{0}(2x^3 - 8x)\,dx + \int_{0}^{2}(-2x^3 + 8x)\,dx$$

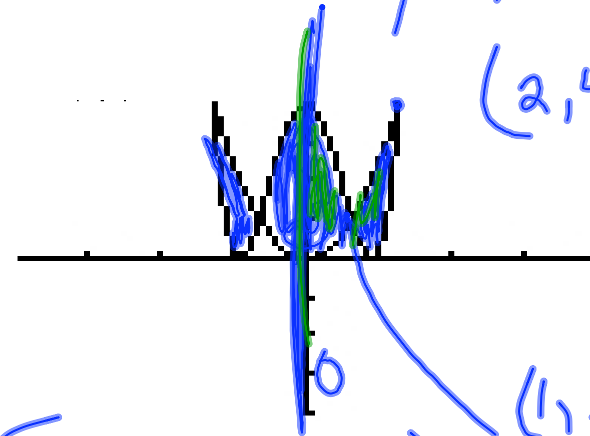
$$\left.\frac{2x^4}{4} - 4x^2\right]_{-2}^{0} + \left.-\frac{1}{2}x^4 + 4x^2\right]_{0}^{2}$$

$$0 - (8 - 16) + (-8 + 16)$$

$$\underline{8} + \underline{8} = 16$$

$y = x^4 - 4x^2 + 4 \qquad y = x^2$

$(2, 4)$



$(1, \frac{1}{2})$

$$\int_0^1 \left[(x^4 - 4x^2 + 4) - x^2\right] dx + \int_1^2 \left[x^2 - (x^4 - 4x^2 + 4)\right] dx$$

$$\int_0^1 (x^4 - 5x^2 + 4)\, dx + \int_1^2 (-x^4 + 5x^2 - 4)\, dx$$

$$\left[\frac{x^5}{5} - \frac{5x^3}{3} + 4x\right]_0^1 + \left[\frac{-x^5}{5} + \frac{5x^3}{3} - 4x\right]_1^2$$

$$\left(\frac{1}{5} - \frac{5}{3} + 4\right) + \left[\left(-\frac{32}{5} + \frac{40}{3} - 8\right) - \left(-\frac{1}{5} + \frac{5}{3} - 4\right)\right]$$

$$\left(\frac{3}{15} - \frac{25}{15} + \frac{60}{15}\right) \qquad \left(-\frac{96}{15} + \frac{200}{15} - \frac{120}{15}\right)$$

$$\frac{38}{15} + \frac{22}{15} \qquad -\frac{16}{15} - \left(-\frac{38}{15}\right)$$

$$\frac{60}{15} = 4$$

$$-\frac{3}{15} + \frac{25}{15} - \frac{60}{15}$$

Due Thurs.

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19, 24, 27, 32